



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,383	08/27/2003	Paul W. McBurney	SS-734-17	7173

20178 7590 12/15/2006

EPSON RESEARCH AND DEVELOPMENT INC
INTELLECTUAL PROPERTY DEPT
2580 ORCHARD PARKWAY, SUITE 225
SAN JOSE, CA 95131

EXAMINER

HAROON, ADEEL

ART UNIT PAPER NUMBER

2618

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/650,383	Applicant(s) MCBURNEY, PAUL W.	
	Examiner Adeel Haroon	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 2 is/are allowed.
- 6) ☒ Claim(s) 3-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/18/06 has been entered.

Response to Arguments

2. Applicant's arguments filed 8/18/06 have been fully considered but they are not persuasive.

With respect to claims 3-9, the applicant argues that Abraham's invention is different because it does not operate in standby mode at the time. However, these claims do not recite any limitations of operating in standby mode as claim 1. Claim 6 only recites operating in standby mode in the preamble, but does not definitively recite that the mobile telephone is in standby mode when the steps for estimating the reference frequency drift are occurring. Although the claims are interpreted in light of the

Art Unit: 2618

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, the rejections of these claims are maintained.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham (U.S. 2004/0142701) in view of Eberlein et al. (U.S. 6,973,121).

With respect to claim 3, Abraham discloses a circuit for estimating reference frequency drift in a navigation receiver comprising a NCO, element numbers 250 and 252, periodically receiving an NCO_value, f and f_e , on which an NCO output frequency depends (Paragraph 29). Abraham discloses a first and second mixer in the tuner, element number 246, connected to an output of the NCO, reference signal, and combining it with a clock signal, and providing further an I-mix and Q-mix signal (Paragraph 29). Abraham also discloses an I and Q correlator, element number 254, for correlating the I and Q mix signals and outputting I and Q correlation outputs

Art Unit: 2618

(Paragraph 32). Abraham discloses sampling a VCO, which is synchronized with the master clock, periodically and the VCO at these times must be locked to a precision carrier frequency signal from the wireless communication network (Paragraph 26). Abraham further discloses having a drift estimate output comprising the I and Q correlation outputs (Paragraphs 29 and 30). Since this method is used in the initialization of the navigation receiver, it reduces local oscillator frequency uncertainty (Paragraph 40). Abraham does not expressly disclose the use of lookup tables for approximating the reference signals. However, Eberlein et al. discloses a receiver system that teaches the use of lookup tables, element number 62, for approximating a sine and cosine wave for the inphase and quadrature version of an NCO output frequency (Column 7, lines 50-56). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Eberlein et al.'s lookup table technique to the circuit of Abraham in order to not perform calculations each time.

With respect to claim 4, Abraham further discloses the NCO receiving data write from a firmware control program and connected to gate a clock signal to the tuner, first and second mixer thereby inherently having a NCO value holding latch (Paragraphs 29 and 30).

With respect to claim 7, Abraham discloses a method for estimating a reference frequency drift in a navigation receiver (Paragraph 16, lines 1-4 and Paragraph 34). Abraham discloses inputting and sampling a VCO, element number 228, burst information, f and f_e , that locked to a precision carrier frequency signal of the wireless communication network (Paragraphs 16 and 22). Abraham also discloses running a

Art Unit: 2618

NCO, element numbers 250 and 252, at a nominal frequency and periodically adjusting said NCO with samples obtained in the step of sampling (Paragraph 29). Abraham discloses mixing both I and Q signals with the sampled VCO signal (Paragraph 29). Abraham also discloses integrating the mixed signals (Paragraph 32). Abraham further teaches computing a navigation receiver reference frequency drift estimate and adjusting the nominal frequency of the NCO with these results (Paragraph 29 and 30). Abraham does not expressly disclose building sine and cosine waves as reference signals. However, Eberlein et al. discloses a receiver system that teaches the use of lookup tables, element number 62, for approximating a sine and cosine wave for the inphase and quadrature version of an NCO output frequency (Column 7, lines 50-56). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Eberlein et al.'s lookup table technique to the circuit of Abraham in order to not perform calculations each time.

5. Claim 5, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham (U.S. 2004/0142701) and Eberlein et al. (U.S. 6,973,121) further in view of Abraham et al. (U.S. 6,819,707).

With respect to claim 5, the modified circuit of Abraham and Eberlein et al. is described above in the discussion of claim 3. Neither Abraham nor Eberlein et al. disclose an I and Q latch. However, Abraham further discloses that the correlator used is described in U.S. application number 09/963345, which is now U.S. 6,819,707 to

Abraham et al. Abraham et al. discloses and I and Q latch, element numbers 401a and 401b, for providing a register of I and Q correlation outputs to data read from a firmware control program (Column 7, lines 60-65). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Abraham et al.'s latch technique in the correlator of the modified circuit of Abraham and Eberlein et al. in order to provide a record of the outputs.

With respect to claim 6, Abraham discloses a frequency discriminator circuit for estimating reference frequency drift of a navigation receiver associated with a mobile telephone in standby mode in figure 1. Abraham discloses sampling a VCO, which is synchronized with the master clock, periodically and the VCO at these times must be locked to a precision carrier frequency signal from the wireless communication network (Paragraph 26). Abraham teaches using this method at the initialization of the navigation receiver (Paragraph 40). Abraham discloses a NCO, element numbers 250 and 252, loaded with an NCO value, f and f_e , to synthesize the frequency of the VCO signal (Paragraph 29). Abraham discloses sampling a VCO, periodically and the VCO at these times must be locked to a precision carrier frequency signal from the wireless communication network (Paragraph 26). Abraham discloses a first and second mixer in the tuner, element number 246, connected to an output of the NCO, reference signal, and combining it with a clock signal, and providing further an I-mix and Q-mix signal (Paragraph 29). Abraham also discloses and I and Q integrator, element number 254, to integrate the I and Q mix signals (Paragraph 32).

Abraham does not expressly disclose the use of lookup tables for approximating the reference signals. However, Eberlein et al. discloses a receiver system that teaches the use of lookup tables, element number 62, for approximating a sine and cosine wave for the inphase and quadrature version of an NCO output frequency (Column 7, lines 50-56). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Eberlein et al.'s lookup table technique to the circuit of Abraham in order to not perform calculations each time.

Neither Abraham nor Eberlein et al. disclose an I and Q latch. However, Abraham further discloses that the correlator used is described in U.S. application number 09/963345, which is now U.S. 6,819,707 to Abraham et al. Abraham et al. discloses an I and Q latch, element numbers 401a and 401b, for providing a register of I and Q correlation outputs to data read from a firmware control program (Column 7, lines 60-65). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Abraham et al.'s latch technique in the correlator of the modified circuit of Abraham and Eberlein et al. in order to provide a record of the outputs.

With respect to claims 8 and 9, the modified method of Abraham and Eberlein et al. is described above in the discussion of claim 7. Neither Abraham nor Eberlein et al. disclose an I and Q latch for setting and collecting the time intervals of the integrator/correlator. However, Abraham further discloses that the correlator used is described in U.S. application number 09/963345, which is now U.S. 6,819,707 to Abraham et al. Abraham et al. discloses an I and Q latch, element numbers 401a and

Art Unit: 2618

401b, for providing a register of I and Q correlation outputs for different time intervals and to collect error (Column 7, lines 60-65). Therefore, it would be obvious to one of ordinary skill in the art at the time of the applicant's invention to apply Abraham et al.'s latch technique in the correlator of the modified circuit of Abraham and Eberlein et al. in order to provide a record of the outputs.

Allowable Subject Matter

6. Claims 1-2 are allowed.

Conclusion

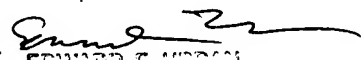
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
12/1/06


EDWARD A. UPTON
SUPERVISOR/TECHNICAL
TECHNOLOGY CENTER